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K-C No. 15,965

KCC 4789
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of David William Koenig et al.

Art Unit 1616

Serial No. 10/029,334

Filed December 20, 2001

Confirmation No. 3427

For PRODUCTS FOR CONTROLLING MICROBIAL
ORGANIC COMPOUND PRODUCTION

Examiner Frank Choi

April 14, 2003

TO THE COMMISSIONER OF PATENTS AND TRADEMARKS,

SIR:

**LETTER TO THE PATENT AND TRADEMARK
OFFICE AND PRELIMINARY AMENDMENT A**

In response to the Restriction and Election Requirement dated March 26, 2003, applicants elect for examination claims 1-24 and 43-46 (Group I). Applicants therefore withdraw from consideration, without prejudice to their patentability, the claims of Group II (25-30) and Group III (31-42). Applicants also expressly reserve the right to file divisional applications directed towards the non-elected claims in the future. Also, applicants elect mannitol as the species of carbohydrate for prosecution on the merits. Claims that read on this species election include 1-22 and 43-46.

Prior to further examination of this application, please make the following amendments in the claims.

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1. (Original) A product comprising a carbohydrate-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the mixture being capable of generating oxygen upon activation, the oxygen acting as a terminal electron acceptor for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced.

2. (Original) The product as set forth in claim 1 wherein the product is selected from the group consisting of diapers, training pants, adult incontinence garments, feminine napkins, paper towels, tampons, interlabial pads, facial tissue, wound management products, bath tissue, deodorant powder, deodorant sticks, diaper pails, liners for diaper pails, refuse containers, bed pads, and puppy pads.

3. (Original) The product as set forth in claim 1 wherein the microbial-produced volatile organic compounds are produced from facultative bacteria.

4. (Original) The product as set forth in claim 1 wherein the microbial-produced volatile organic compounds are produced from facultative Gram negative bacteria.

5. (Original) The product as set forth in claim 1 wherein the microbial-produced volatile organic compounds are produced from *Proteus mirabilis*.

6. (Original) The product as set forth in claim 1 wherein the product contains from about 0.01% (by weight of the product) to about 5% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

7. (Original) The product as set forth in claim 1 wherein the product contains from about 0.1% (by weight of the product) to about 1% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

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8. (Original) The product as set forth in claim 1 wherein the carbohydrate-hydrogen peroxide mixture is encapsulated in a shell.

9. (Original) The product as set forth in claim 8 wherein the diameter of the shell is no greater than about 25 micrometers.

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5 10. (Original) A product comprising a carbohydrate-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the mixture being capable of generating oxygen upon activation, the oxygen acting as a terminal electron acceptor for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced, the carbohydrate comprising a sugar alcohol.

11. (Original) The product as set forth in claim 10 wherein the sugar alcohol is selected from the group consisting of dulcitol, arabitol, adonitol, mannitol, sorbitol, xylitol, lactitol, maltitol, dithioerythritol, dithiothreitol, glycerol, galactitol, erythritol, inositol, ribitol, hydrogenated starch hydrolysates, and mixtures and combinations thereof.

12. (Original) The product as set forth in claim 10 wherein the sugar alcohol is selected from the group consisting of mannitol and sorbitol.

13. (Original) The product as set forth in claim 10 wherein the product contains from about 0.01% (by weight of the product) to about 5% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

14. (Original) The product as set forth in claim 10 wherein the product contains from about 0.1% (by weight of the product) to about 1% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

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15. (Original) The product as set forth in claim 10 wherein the product is selected from the group consisting of diapers, training pants, adult incontinence garments, feminine napkins, paper towels, tampons, interlabial pads, facial tissue, wound management products, bath tissue, deodorant powder, deodorant sticks, diaper
5 pails, liners for diaper pails, refuse containers, bed pads, and puppy pads.

16. (Original) The product as set forth in claim 10 wherein the microbial-produced volatile organic compounds are produced from facultative bacteria.

17. (Original) The product as set forth in claim 10 wherein the microbial-produced volatile organic compounds are produced from facultative Gram negative bacteria.

18. (Original) The product as set forth in claim 10 wherein the microbial-produced volatile organic compounds are produced from *Proteus mirabilis*.

19. (Original) The product as set forth in claim 10 wherein the carbohydrate-hydrogen peroxide mixture is encapsulated in a shell.

20. (Original) The product as set forth in claim 19 wherein the shell has a diameter no greater than about 25 micrometers.

21. (Original) A product comprising from about 0.01% (by weight of the product) to about 5% (by weight of the product) of a mannitol-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the mixture being capable of generating oxygen upon
5 activation, the oxygen acting as a terminal electron acceptor for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced.

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22. (Original) The product as set forth in claim 21 wherein the product is selected from the group consisting of diapers, training pants, adult incontinence garments, feminine napkins, paper towels, tampons, interlabial pads, facial tissue, wound management products, bath tissue, deodorant powder, deodorant sticks, diaper
5 pails, liners for diaper pails, refuse containers, bed pads, and puppy pads.

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23. (Original) A product comprising from about 0.01% (by weight of the product) to about 5% (by weight of the product) of a sorbitol-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the mixture being capable of generating oxygen upon
5 activation, the oxygen acting as a terminal electron acceptor for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced.

24. (Original) The product as set forth in claim 23 wherein the product is selected from the group consisting of diapers, training pants, adult incontinence garments, feminine napkins, paper towels, tampons, interlabial pads, facial tissue, wound management products, bath tissue, deodorant powder, deodorant sticks, diaper
5 pails, liners for diaper pails, refuse containers, bed pads, and puppy pads.

25. (Original) A process for preparing a product comprising a carbohydrate-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the mixture being capable of generating oxygen upon activation, the oxygen acting as a terminal electron acceptor
5 for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced, the process comprising:
mixing a carbohydrate and hydrogen peroxide together to form a carbohydrate-hydrogen peroxide mixture;

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heating the carbohydrate-hydrogen peroxide mixture at a temperature of at least
10 about 90°C for at least about 4.5 hours to evaporate off any solvent in the mixture and
produce solid particles; and
incorporating the solid particles into the product.

26. (Original) The process as set forth in claim 25 wherein the mixture is heated
for a period of at least about 7 hours prior to incorporation into the product.

27. (Original) The process as set forth in claim 25 wherein the mixture is heated
for a period of at least about 24 hours prior to incorporation into the product.

28. (Original) The process as set forth in claim 25 wherein the carbohydrate is
selected from the group consisting of dulcitol, arabitol, adonitol, mannitol, sorbitol,
xylitol, lactitol, maltitol, dithioerythritol, dithiothreitol, glycerol, galactitol, erythritol,
inositol, ribitol, hydrogenated starch hydrolysates, and mixtures and combinations
5 thereof.

29. (Original) A process for preparing a product comprising a carbohydrate-
hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin
caused by microbial-produced volatile organic compounds, the mixture being capable of
generating oxygen upon activation, the oxygen acting as a terminal electron acceptor
5 for bacteria on or near the skin's surface such that the production of volatile organic
compounds by the bacteria is reduced, the process comprising:

mixing a sugar alcohol and hydrogen peroxide together to form a sugar-alcohol-
hydrogen peroxide mixture;

heating the sugar alcohol-hydrogen peroxide mixture at a temperature of at least
10 about 97°C for at least about 7 hours to evaporate off any solvent in the mixture and
produce solid particles; and
incorporating the solid particles into the product.

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30. (Original) The process as set forth in claim 29 wherein the sugar alcohol is selected from the group consisting of mannitol and sorbitol.

31. (Original) A process for producing a stream of oxygen to reduce the amount of irritation on a wearer's skin caused by microbial-produced volatile organic compounds, the process comprising:

introducing a carbohydrate-hydrogen peroxide mixture into a product to be worn by the wearer, the carbohydrate-hydrogen peroxide mixture being capable of generating oxygen upon activation, the carbohydrate-hydrogen peroxide mixture being activated upon insult by the wearer.

32. (Original) The process as set forth in claim 31 wherein the product contains from about 0.01% (by weight of the product) to about 5% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

33. (Original) The process as set forth in claim 31 wherein the carbohydrate-hydrogen peroxide mixture comprises a sugar alcohol-hydrogen peroxide mixture.

34. (Original) The process as set forth in claim 33 wherein the sugar alcohol is selected from the group consisting of dulcitol, arabitol, adonitol, mannitol, sorbitol, xylitol, lactitol, maltitol, dithioerythritol, dithiothreitol, glycerol, galactitol, erythritol, inositol, ribitol, hydrogenated starch hydrolysates, and mixtures and combinations thereof.

35. (Original) The process as set forth in claim 34 wherein the sugar alcohol is selected from the group consisting of mannitol and sorbitol.

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36. (Original) A process for producing a volatile organic compound-inhibiting stream of oxygen to reduce the amount of irritation on a wearer's skin caused by volatile organic compounds produced by facultative bacteria, the process comprising: introducing a carbohydrate-hydrogen peroxide mixture into a product to be worn
- 5 by the wearer, the carbohydrate-hydrogen peroxide mixture being capable of generating oxygen upon activation, the carbohydrate-hydrogen peroxide mixture being activated upon insult by the wearer.

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37. (Original) The process as set forth in claim 36 wherein the volatile organic compound-inhibiting stream of oxygen reduces the amount of irritation on the wearer's skin caused by volatile organic compounds produced by Gram negative facultative bacteria.

38. (Original) The process as set forth in claim 37 wherein the Gram negative facultative bacteria is *S. aureus*.

39. (Original) The process as set forth in claim 36 wherein the product contains from about 0.01% (by weight of the product) to about 5% (by weight of the product) of the carbohydrate-hydrogen peroxide mixture.

40. (Original) The process as set forth in claim 36 wherein the carbohydrate-hydrogen peroxide mixture comprises a sugar alcohol-hydrogen peroxide mixture.

41. (Original) The process as set forth in claim 40 wherein the sugar alcohol is selected from the group consisting of dulcitol, arabitol, adonitol, mannitol, sorbitol, xylitol, lactitol, maltitol, dithioerythritol, dithiothreitol, glycerol, galactitol, erythritol, inositol, ribitol, hydrogenated starch hydrolysates, and mixtures and combinations thereof.

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42. (Original) The process as set forth in claim 41 wherein the sugar alcohol is selected from the group consisting of mannitol and sorbitol.

43. (Original) A product comprising a carbohydrate-hydrogen peroxide mixture for reducing the amount of irritation on a wearer's skin caused by volatile organic compounds, the mixture being capable of producing a volatile organic compound-inhibiting amount of oxygen upon activation, the oxygen acting as a terminal electron acceptor for bacteria on or near the skin's surface such that the production of volatile organic compounds by the bacteria is reduced.

44. (Original) ~~The product~~ as set forth in claim 43 wherein the carbohydrate is a sugar alcohol.

45. (Currently amended) The product as set forth in claim 44 wherein the sugar alcohol is selected from the group consisting of dulcitol, arabitol, adonitol, mannitol, sorbitol, xylitol, lactitol, maltitol, dithioerythritol, dithiothreitol, glycerol, galactitol, erythritol, inositol, ribitol, hydrogenated starch hydrolysates, and mixtures and combinations thereof.

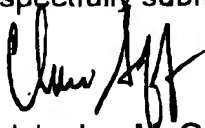
46. (Currently amended) The product as set forth in claim 45 wherein the sugar alcohol is selected from the group consisting of mannitol and sorbitol.

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It is felt that a full and complete response has been made to the Office action. It is believed that a fee is not due in connection with this response. However, if the Commissioner determines that a fee is due, he is authorized to charge Deposit Account No. 19-1345.

Respectfully submitted,



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